APPENDIX

DETERMINATION OF ELIGIBILITY OF EX-RANGER TO BE LISTED ON THE NATIONAL REGISTER OF HISTORIC PLACES

- Letter to Nancy Schamu, Executive Director, National Conference of State Historic Preservation Officers, 30 June 2010
- RANGER (CV 61) Final Determination, 30 November 2010
- Program Comment Pursuant to 36 C.F.R. §800.14(e) Implementing Section 106 of the National Historic Preservation Act for the Evaluation of Vessels for Eligibility for Listing in the National Register of Historic Places and the Treatment of Eligible Vessels to Resolve Adverse Effects that May Result from Certain Methods of Final Disposition ("Navy Program Comment")

DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
1333 ISAAC HULL AVENUE SE
WASHINGTON NAVY YARD DC 20376

IN REPLY REFER TO
4770
Ser 333/123
30 June 2010

Nancy Schamu, Executive Director
National Conference of State Historic Preservation Officers
Suite 342
Hall of the States
444 N. Capitol St. NW
Washington, DC 20001

Dear Ms. Schamu:

On March 5, 2010, the Advisory Council on Historic Preservation issued a Program Comment for the Department of the Navy setting forth the way in which the Navy will comply with Section 106 of the National Historic Preservation Act, with regard to determining the eligibility of vessels with the potential for listing in the National Register of Historic Places (NRHP), and the treatment of adverse effects that may result from certain methods of final disposition.

In accordance with the Program Comment's procedures for participation by historic preservation stakeholders, the Navy will provide statements of eligibility or ineligibility for listing in the NRHP to the National Conference of State Historic Preservation Officers (NCSHPO), in addition to placing them on the Navy's web site. The Navy will solicit written comments on those statements of eligibility or ineligibility for listing in the NRHP from historic preservation stakeholders via its web site. Historic preservation stakeholders will have sixty days from the time the list is published to provide their comments. The Navy will notify historic preservation stakeholders, including the Historic Naval Ships Association (HNSA) and other Veterans affiliated organizations, at the beginning of the sixty-day period.

The NCSHPO and the copy-to addresses of this letter are invited to submit written comments on the following ships and the Navy's determinations of eligibility:

- Ex-FORRESTAL (AVT 59), located in Philadelphia, PA, is eligible for listing on the NRHP.
- Ex-SARATOGA (CV 60), located in Newport, RI, is not eligible.

- Ex-RANGER (CV 61), located in Bremerton, WA, is eligible.
- Ex-INDEPENDENCE (CV 62), located in Bremerton, WA, is not eligible.
- Ex-KITTY HAWK (CV 63), located in Bremerton, WA, is eligible.
- Ex-CONSTELLATION (CV 64), located in Bremerton, WA, is eligible.
- USNS MOUNT BAKER (AE 34), an active ship based on the east coast that scheduled for inactivation on August 2, 2010, is not eligible.

The Naval History and Heritage Command's determinations of eligibility or ineligibility for these ships are available at www.navsea.navy.mil/teamships/Inactiveships/Historic/Historic.aspx.

Sincerely,

Stan Clark
Deputy Program Manager
Navy Inactive Ships Program, PMS 333

Copy to:
Historic Naval Ships Association
USS Forrestal Association, Inc.
USS Saratoga Association, Inc.
USS Ranger Reunion Association, Inc.
USS Ranger Foundation, Inc.
USS Independence CV 62 Association, Inc.
USS Kitty Hawk CVA/CV-63 Veterans Association, Inc.
USS Constellation CVA/CV 64 Association, Inc.
AE/AOE Sailors Association, Inc.

RANGER (CV-61)

Final Determination: 30 November 2010

The Eighth Ship of the Fleet to carry the Name
Built By Newport News Shipbuilding and Dry Dock Company
Keel Laid: 2 August 1954
Launched: 29 September 1956
Commissioned: 10 August 1957

A complete history of RANGER (CV-61) is currently not available in the *Dictionary of American Naval Fighting Ships*. Her available narrative in this publication ends in 1974. For the ship's last nineteen years of service, it was necessary to review her unpublished Command Operations Reports in the collections of the Naval Historical Center's Naval Warfare Division (ex-Ships' Histories Branch).

Deployments:

RANGER was the only unit of the CV-59 class to spend her entire career in the Pacific. She made a total of twenty-two Western Pacific deployments. She was an active participant of the Vietnam War and was the only west coast based carrier to deploy in support of Operation Desert Storm. Her last deployment in 1992 saw her deployed across the Indian Ocean in support of Operation Restore Hope off Somalia.

Awards:

Presidential Unit Citation: 0

Navy Unit Commendation: 3 (January – August 1966; November 1968 – May 1969; January – February 1991)

Meritorious Unit Commendation: 5 (December 1967 – May 1968; October 1969 – May 1970; November 1970 – June 1971; May 1986 – July 1988; July – August 1988

Battle Efficiency Award: 3 (January – December 1987; January – December 1991; January – December 1992

Navy Expeditionary Service Medal: 1 (October 1980 – March 1981)

National Defense Service Medal: 2 (December 1960 – August 1974; January – March 1991)

Armed Forces Expeditionary Medal: 13 (June 1960; May 1963: September 1964; October 1964; November 1964 – January 1965 January 1965 – March 1965; April 1965;

January – March 1968; March 1969; April 1969; January 1970; April 1970; December 1990)

Vietnam Service Medal: 25 (January – February 1966; February – March 1966; April – May 1966; May – July 1966; July – August 1966; December 1967; January 1968; March – April 1968; April – May 1968; January 1969; February – March 1969; April 1969; November – December 1969; December 1969 – January 1970; January – February 1970; February – March 1970; April – May 1970; November – December 1970; December 1970 – January 1971; February – March 1971; March – April 1971; April 1971 – May 1971; December 1972 – January 1973; January 1973; February 1973)

Southwest Asia Campaign Medal: 3 (January 1991; January – April 1991; September – December 1992)

Humanitarian Service Medal: 2 (May – June 1976; March 1981)

Sea Service Ribbon: 11 (August 1974 – January 1993)

Republic Of Vietnam Gallantry Cross Unit Citation: 25 [January 1966 (3 Awards); February 1966 (4 Awards); March 1966 (3 Awards); April 1966; December 1967; January 1968 (4 Awards); March 1968; March – April 1968; April 1968 (3 Awards); April – May 1968; January 1969; February – March 1969; April 1969]

Republic of Vietnam Campaign Medal: 1

Saudi Arabia's Kuwait Liberation Medal: 1

Battle Stars: 13 (Vietnam)

Noteworthy Accomplishments / Events:

RANGER's noteworthy accomplishments center on her combat prowess.

Conclusion:

RANGER is not first of the class, nor has a president served in her. She does not have a Presidential Unit Citation. However, she has a very impressive combat history for Vietnam and the liberation of Kuwait in 1991.

Unlike her three sister ships and four cousins, RANGER never had a SLEP [Service Life Extention Program] overhaul. As the least modern of the lot, she retains more historic fabric of the basic FORRESTAL design. For instance, she still retains the massive sponsons that supported the original gun armament.

A strong case for RANGER being eligible for listing in the Register could be made in light of her combat record.

Sources:

USS RANGER (CV-61) Decommissioning Program Dated 10 July 1993

Friedman, Norman. U.S. Aircraft Carriers An Illustrated Design History, Naval Institute Press, Annapolis 1983.

Grossnick, Roy. United States Naval Aviation 1910 – 1995. Naval Historical Center, Washington, D.C. 1996.

Polmar, Norman. The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet 15th ed. Naval Institute Press, Annapolis 1993.

Polmar, Norman. The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet 18th ed. Naval Institute Press, Annapolis 2005.

USS RANGER (CV-61) *DANFS* Entry, Unattributed
http://www.history.navy.mil/danfs/r2/ranger-x.htm

Command Histories and Command Operations Reports for CV-61 in the collections of the History and Archives Division, Naval History and Heritage Command.

HISTORIC PRESERVATION STAKEHOLDER COMMENT:

Historic preservation stakeholder comments received are considered when preparing final determinations. The initial determination for this vessel was made available for comment by historic preservation stakeholders for 60 days. During that time, the Navy received zero (0) written comments.

Preserving America's Heritage

**Program Comment Pursuant to 36 C.F.R. § 800.14(e)
Implementing Section 106 of the National Historic Preservation Act
for the Evaluation of Vessels for Eligibility for Listing
in the National Register of Historic Places
and the Treatment of Eligible Vessels to Resolve Adverse Effects
that May Result from Certain Methods of Final Disposition**

I. Introduction

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to "take into account the effect of [an] undertaking on any…structure…eligible for inclusion in the National Register" and to "afford the Advisory Council on Historic Preservation…a reasonable opportunity to comment with regard to such undertaking." Regulations promulgated by the Advisory Council on Historic Preservation (ACHP) and codified at 36 C.F.R. Part 800 describe the procedures Federal agencies must follow to meet their Section 106 obligations. Under 36 C.F.R. § 800.14, the ACHP provides Federal agencies with "a variety of alternative methods…to meet their Section 106 obligations," thereby allowing agencies "to tailor the Section 106 process to their needs." (65 FR 77698-01).

The following Program Comment was proposed by the Navy, and issued by the ACHP on (date to be determined), pursuant to 36 C.F.R. § 800.14(e). The Program Comment benefits the Navy and the historic preservation stakeholders by providing the Navy with a process for evaluating floating vessels to determine eligibility for listing in the National Register of Historic Places (NRHP) for Section 106 and Section 110 purposes. The Program Comment also provides a Section 106 method of treatment of eligible vessels to resolve adverse effects that result from certain methods of final disposition. The Program Comment will enable Navy decision-makers to apply the eligibility criteria as defined by the National Park Service (NPS) at 36 C.F.R. Part 60 to vessels in active service and decommissioned vessels. Furthermore, the Program Comment will give the public and various historic preservation stakeholders opportunities to provide input regarding a vessel's eligibility for listing in the NRHP. The Program Comment will establish a type of treatment (i.e., collecting documentation in accordance with Section IV of this Program) that will begin immediately from the time a vessel is determined eligible, and thus, well before a Navy decision to dispose of the vessel. Finally, the Program Comment will clarify that the Navy will not need to conduct Section 106 reviews regarding effects to active vessels.

By implementing the Program Comment, the Navy will no longer be required to follow the standard Section 106 process for each final disposition decision affecting inactive vessels. In addition to satisfying the Navy's obligations under Section 106 of the NHPA for vessels, the Program Comment enables the Navy to fulfill its responsibility under Section 110 of the NHPA to manage and maintain vessels that may be eligible for listing in the NRHP in a way that considers the preservation of their historic value.

ADVISORY COUNCIL ON HISTORIC PRESERVATION
1100 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov

II. Background

Naval vessels are the ships and service craft built by and for the Navy, used in furthering the Navy's military mission, and listed in the Naval Vessel Register (NVR). Naval vessels are an unusual type of historic property. They are mobile assets that are put into harm's way and remain in active service for typically less than fifty years. Because naval vessels have a limited useful life, the Chief of Naval Operations undertakes a Ship Disposition Review (SDR) each year to determine whether any vessels should be decommissioned from active service. The total number of vessels to be decommissioned varies from year to year, but currently averages eight per year.

Upon the decommissioning of a vessel, the Secretary of the Navy is authorized, under 10 U.S.C. § 7304, to strike the vessel from the NVR. By the authority of the Secretary of the Navy under 10 U.S.C. §§ 7305-7307, stricken Navy vessels may be: 1) sold; 2) dismantled; 3) transferred, by gift or otherwise, to any State, Commonwealth, or possession of the U.S., the District of Columbia, or non-profit entity; 4) used for experimental purposes, including Navy sink exercises (SINKEXes); 5) transferred, by gift or otherwise, to any State, Commonwealth or possession of the U.S. for use as an artificial reef; or 6) disposed to a foreign nation by sale, lease, grant, loan, barter, transfer or otherwise. These six methods of final disposition, which are "undertakings" as defined by 36 C.F.R. § 800.16(y), are available to the Navy because it is neither cost effective nor consistent with the Navy's mission to retain vessels that have surpassed their useful life.

III. Determining Eligibility for Listing in the NRHP

<u>A. Criteria</u>

The Secretary of the Interior, through the NPS, established four criteria pursuant to its authority under the NHPA for determining whether property is eligible for listing in the NRHP. The four evaluation criteria are codified at 36 C.F.R. § 60.4 and listed below. The Navy is required to evaluate vessels for eligibility for listing in the NRHP using the four evaluation criteria:

> i. are associated with events that have made a significant contribution to the broad patterns of our history;
>
> ii. are associated with the lives of persons significant in our past;
>
> iii. embody the distinctive characteristics of a type, period, or method of construction; or
>
> iv. have yielded, or may be likely to yield, information important in prehistory or history.

Navy vessels that meet one or more of these criteria, and that continue to possess integrity of (as appropriate) design, materials, workmanship, feeling and/or association are eligible for listing in the NRHP.

Recognizing that vessels have a limited useful life of typically less than fifty years, the Navy has determined that, for Section 106 and Section 110 purposes, vessels possessing any of the following characteristics at any time, including during active service, are of exceptional importance and meet the listing eligibility criteria established by the NPS and codified at 36 C.F.R. § 60.4:

> i. The vessel was awarded an individual Presidential Unit Citation. (A Presidential Unit Citation is awarded to military units that have performed an extremely meritorious or heroic act, usually in

V. Reports

The Navy will submit an annual report to the NCSHPO and the ACHP on the progress of this Program Comment on 1 December, annually. The report will include the following information:

i. The names and status of active vessels identified as eligible for listing in the NRHP, and the basis for their eligibility;

ii. The names and status of decommissioned vessels identified as eligible for listing in the NRHP, and a copy of the statement of eligibility;

iii. The names and status of decommissioned vessels identified as ineligible for listing in the NRHP, and a copy of the statement of ineligibility; and

iv. The names of the vessels eligible for listing in the NRHP whose final disposition occurred during the reporting period, along with the status of the documentation supporting final disposition.

The annual report will also be made available to the public on the Navy's donation website.

VI. Effect of the Program Comment

By following this Program Comment, the Navy will meet its responsibilities for compliance with Section 110, in part, and Section 106 of the NHPA concerning the evaluation of vessels for eligibility for listing in the NRHP and the final disposition of eligible vessels. Accordingly, the Navy will no longer be required to follow the standard Section 106 process for each final disposition decision affecting inactive vessels, except as provided in this Program Comment.

Vessels already determined eligible for listing in the NRHP that are not subject to an existing agreement established through the Section 106 consultation process will be subject to this Program Comment as if their eligibility had been established as a result of this Program Comment. Vessels that are the subject of an existing agreement established pursuant to the Section 106 regulations will continue to be subject to that existing agreement.

The Program Comment described herein will remain in effect for twenty years, unless and until the Navy decides to terminate its application or the ACHP "determines that the consideration of historic [vessels] is not being carried out in a manner consistent with the program comment" and withdraws the comment. (36 C.F.R. § 800.14(e)(6)). Upon either event, the Navy shall comply with the requirements of 36 C.F.R. Part 800 for each undertaking within the scope of this Program Comment. The Navy shall inform historic preservation stakeholders of the Program Comment's termination.

The Navy shall reexamine the Program Comment's effectiveness after the first year of implementation and every five years thereafter within the context of its annual report or by convening a meeting with historic preservation stakeholders. In reexamining the Program Comment's effectiveness, the Navy shall consider any written recommendations for improvement submitted by historic preservation stakeholders to the NHHC.

Once in effect, the Program Comment may be amended when such an amendment is agreed to in writing by the Navy and the ACHP. The amendment will be effective on the date a copy of the amended Program Comment signed by the Navy and the ACHP is filed with the ACHP.

Appendix A - Definitions

a. Command Operation Report, formerly Command History Report means a report that covers the operational and administrative actions of the command for each calendar year and usually consists of a chronology, a narrative, and enclosures. Some Command Operation Reports are classified for a set period of time.

b. Decommission means to remove a vessel from active service.

c. Documentation package means a compilation of historically significant records including, but not limited to, command operation reports, war diaries, and deck logs.

d. Effect means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register.

e. Historic Preservation Stakeholder means the ACHP, the NPS, SHPOs, NCSHPO, the National Trust, any other agency or organization specifically concerned with historic preservation issues, and the public.

f. Naval Vessel Register means the official inventory of ships and service craft titled to or in the custody of the U.S. Navy. It includes information about vessels from the time of their authorization through their life cycle and final disposition.

g. Ship deck log means a daily chronology of particular events for administrative and legal purposes, as set forth by the Office of the Chief of Naval Operations Instruction 3100.7 series.

h. Ship disposition review means an annual review of vessels in active service conducted by the Chief of Naval Operations to determine which vessels will be decommissioned from active service and retained for potential reactivation or stricken from the Naval Vessel Register and designated for disposal.

i. Stricken vessel means a decommissioned vessel that has been removed from the Naval Vessel Register.

j. Undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval.

k. Vessel means the floating ships and service craft built by and for the Navy, used in furthering the Navy's military mission, and listed in the Naval Vessel Register. *Vessel* does not include shipwrecks or those vessels retained in Navy custody for public display (i.e., USS CONSTITUTION, NAUTILUS (SSN 571), ex-BARRY (DD 933)).

l. War diary means a ship's recounting of wartime operations. Some war diaries are written in a cursory fashion. Others are works of literary art. War diaries for combat actions are included with the Command Operations Report.

(Issued on March 5, 2010.)

REGULATORY CORRESPONDENCE PERTAINING TO COASTAL COORDINATION

- Record of Email with the State of Washington
- Record of Email with the State of Texas

-----Original Message-----
From: Randall, Loree' (ECY) [mailto:lora461@ECY.WA.GOV]
Sent: Thursday, July 14, 2011 1:27 PM
To: Jill Enright
Cc: michael.hardiman@navy.mil
Subject: RE: CCND for ex-CONSTELLATION

As indicated below after discussing this project I determined that no further coordination is needed per Washington's Coastal Zone Management Program. If you have any other questions please contact me.

Loree' Randall
Ecology 401/CZM Policy lead
360/407-6068
Lora461@ecy.wa.gov

-----Original Message-----
From: Jill Enright [mailto:jenright@dandp.com]
Sent: Wednesday, July 13, 2011 5:15 AM
To: Randall, Loree' (ECY)
Cc: michael.hardiman@navy.mil
Subject: RE: CCND for ex-CONSTELLATION

Just wanted to check and see if you got the below message and see if you knew when you would have time to respond. NAVSEA would like to move forward with the EA which is in Draft stage currently. Thank you.

-----Original Message-----
From: Jill Enright
Sent: Wednesday, June 29, 2011 9:22 AM
To: 'lora461@ecy.wa.gov'
Cc: Cummings, Tuwana H CIV NAVSEA, SEA 00L
Subject: FW: CCND for ex-CONSTELLATION
Importance: High

Loree',
I have been corresponding with Michael Hardiman of NAVFAC regarding the proposed removal of ex-CONSTELLATION from INACTSHIPMAINTO Bremerton. As you can see below, he has discussed this with you and you have all agreed that there would be no effect on coastal use or resources and that a CCND is not required. Mike referred me to you and NAVSEA legal has asked that I get an email response from you to add to the EA we are preparing for the proposed removal of the vessel from WA and following dismantling in MD or TX.
Can you please provide me a concurrence that we are ok proceeding without doing a CCND for WA?
Thank you,
Jill

-----Original Message-----
From: Hardiman, Michael O CIV NAVFAC NW, PRB41 [mailto:michael.hardiman@navy.mil]
Sent: Tuesday, June 28, 2011 7:09 PM
To: Jill Enright
Cc: Leicht, Gregory B CIV NAVFAC NW, Environmental

Subject: RE: CCND for ex-CONSTELLATION

The only action you have in WA State is removal of a vessel. Our call is that there is no effect on coastal use or resources and that a negative determination is not required on our end. As I've said, we have discussed with the State Federal Consistency Coordinator the need for CZMA coordination for operational related activities at NBK. They agreed that coordination is not needed. Recommend that you or Tuwana call Loree' Randall, Federal Consistency Coordinator, with WA Dept. of Ecology at (360) 407-6068 to discuss your action and the need for coordination. Citation of the phone call in you EA should be all that's needed.

Mike

-----Original Message-----
From: Jill Enright [mailto:jenright@dandp.com]
Sent: Monday, January 10, 2011 5:19
To: Hardiman, Michael O CIV NAVFAC NW, PRB41
Cc: Leicht, Gregory B CIV NAVFAC NW, Environmental
Subject: RE: CCND for ex-CONSTELLATION

We are drafting an EA to cover the removal of the vessel from Bremerton and the dismantling actions at a facility (either Sparrows Point or Brownsville currently). The only part that is in the WA coastal zone would be the removal of the ship from the facility.

From: Ray Newby <Ray.Newby@GLO.TEXAS.GOV>
Sent: Thursday, April 10, 2014 16:40
To: Poles, James S CIV NAVSEA SEA21, SEA21I
Subject: Re: Follow-up to 4 April telephone conversation

Mr. Poles,

Yes, I concur. I'm not aware of any federal actions or activities that would be associated with
this project that would require a Texas CMP consistency certification. Please let me know if you
need any additional information regarding this matter.

Sincerely,

Please let me know if you need any additional information on this matter.

Ray Newby, P.G.
Coastal Geologist
Texas General Land Office
Coastal Resources Program
ph. (512) 475-3624
fx. (512) 475-0680

>>> "Poles, James S CIV NAVSEA SEA21, SEA21I" <james.poles@navy.mil> 4/10/2014 10:07 AM
>>>
To: Mr. Ray Newby, P.G., Texas General Land Office

Mr. Newby: We spoke on April 4, 2014, regarding the U.S. Navy's plans to tow one or more
inactive ships via the Brownsville Ship Channel to ship dismantling facilities located in or
nearby Brownsville. I explained that I needed confirmation that this activity would not require
a Coastal Zone Management conformity review by the State of Texas because the towing would
take place in existing ship channels and the towing/dismantling would not require any dredging
or construction. You indicated that a conformity review by or permit under the Texas Coastal
Management Program would not be required.

Our general counsel has asked me to obtain your concurrence via email. Please reply back to this
email with the statement, "concur."

Thank you for your help in this matter.

Sincerely,

James S. Poles
Environmental Project Manager
Navy Inactive Ships Office (SEA-21I)
Naval Sea Systems Command
Washington Navy Yard @ NAVSEAWEST
202-781-0149 (office)
202-246-8642 (cell)

INFORMAL CONSULTATION WITH THE NATIONAL MARINE FISHERIES SERVICE

- Biological Evaluation for Species Listed Under the Endangered Species Act for the Towing of Inactive Ships, June 2014
- Addendum to the Biological Evaluation, September 2014
- Letter from Donna S. Wieting, Director, Office of Protected Resources, National Marine Fisheries Service, November 17, 2014

Biological Evaluation for Species Listed Under the Endangered Species Act for the Towing of Inactive Ships

June 2014

Action Proponent:
Naval Sea Systems Command Inactive Ships Office (SEA 21I)

Prepared By:
Naval Undersea Warfare Center Division, Newport RI
Environmental Division, Mission Environmental Planning Program
1176 Howell St., Newport, RI 02841

CHAPTER 1 PROPOSED ACTION

The U.S. Navy, Naval Sea Systems Command, Navy Inactive Ships Program (SEA 21I) proposes to contract for the tow and dismantling of inactive ships that are eligible for listing in the National Register of Historic Places from their existing berthing locations to dismantling facilities, which will be determined once a contract is awarded. Potential origination ports include the following: Newport, Rhode Island; Philadelphia, Pennsylvania; Bremerton, Washington and Pearl Harbor, Hawaii. Potential destination ports include the following: Brownsville, Texas; New Orleans, Louisiana; Baltimore, Maryland; Jacksonville, Florida; Pearl Harbor, Hawaii and Benicia, California. Ships transiting between the east and west coasts of the United States (U.S.) will either go around Cape Horn through the Straits of Magellan or through the Panama Canal. The Proposed Action may occur at any time during the year.

Towing routes from Newport or Philadelphia would depend upon the final destination determined once the contract is awarded. To access the facilities at Brownsville, New Orleans, or Baltimore, the proposed route would track offshore once departing Narragansett Bay or Delaware Bay to remain outside the main axis of the Gulf Stream, nearing the coast approaching Cape Hatteras, and passing through the Straits of Florida before entering the Gulf of Mexico. The route from Philadelphia to Jacksonville would be similar, with the tug and tow crossing west across the Gulf Stream and entering the mouth of the St. Johns River. The route from Philadelphia to Baltimore would transit the Delaware River, Delaware Canal and the Chesapeake Bay.

Towing routes from Bremerton or Pearl Harbor would also depend upon the final destination determined once the contract is awarded, and may require that the tug and tow to transit either the Panama Canal or around Cape Horn through the Straits of Magellan. Once in the Atlantic Ocean, the tug and tow would either proceed through the Gulf of Mexico to Brownsville or continue along the Atlantic Coast, entering the Chesapeake Bay at Hampton Roads.

During transit, the tug and tow would travel at speeds of 10 knots or less. The tow cable could be up to 2,000 feet (ft; 610 meters [m]) long, consisting of 2.25 inch (in; 5.72 centimeters [cm]) diameter wire rope. While underway, the cable may dip 100 ft (30 m) below the surface; the tug would maintain approximately 75 tons (68 metric tons) of strain on the cable.

CHAPTER 2 EXISTING ENVIRONMENT

This section describes the existing environment of the proposed action. Information specific to the Study Areas of the proposed transit routes are presented when possible. Information is given by general Study Areas which includes the Hawaiian Pacific, eastern Pacific (western U.S. coast), Gulf of Mexico, western Atlantic (eastern U.S. Coast), Caribbean Sea, and oceans of the Southern Hemisphere (South Pacific, South Atlantic, and Southern oceans).

2.1. FISH

The fish species discussed here are listed under the Endangered Species Act (ESA). The two species addressed only occur within the western Atlantic Study Area.

2.1.1. Atlantic Sturgeon

The ESA-listed Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) is an anadromous fish which undergoes seasonal migrations between freshwater habitats where they spawn, and shallow marine waters (33 to 164 ft [10 to 50 m]) where they forage and grow. Tagging data indicate that immature Atlantic sturgeon disperse extensively once they move into coastal waters (Secor et al. 2000). Atlantic sturgeon may occur within the western Atlantic Study Area along the east coast of the U.S.

2.1.2. Shortnose Sturgeon

The ESA-listed shortnose sturgeon (*Acipenser brevirostrum*) inhabits rivers and estuaries. They are anadromous fish that spawn in the coastal rivers along the east coast of North America from the St. John River in Canada to the St. Johns River in Florida. They prefer nearshore, marine, estuarine, and riverine habitat of large river systems. They are benthic feeders that prey upon crustaceans, mollusks, and insects. Shortnose sturgeon may occur within the western Atlantic Study Area along the east coast of the U.S (Allen and Angliss 2010).

2.2. MARINE MAMMALS

The marine mammals discussed here are listed under the ESA. Table 1~~Table 1~~ details the ESA-listed marine mammals in these Study Areas and summarizes their potential occurrence in each Study Area.

Table 1: ESA-listed Marine Mammal Occurrence in Proposed Study Areas

Species	Hawaiian Pacific	Eastern Pacific	Gulf of Mexico	Western Atlantic	Caribbean Sea	Southern Hemisphere
Cetaceans						
Blue whale (*Balaenoptera musculus*)	Rare (Winter)	Year-round	Rare	Occasional visitor	Rare	Year-round (*B.m. brevicada*)
False killer whale (*Pseudorca crassidens*)[1]	Year-round					
Fin whales (*Balaenoptera physalus*)	Rare	Year-round	Rare	Year-round	Rare	Rare
Humpback whale (*Megaptera novaengliae*)	Winter and spring	Year-round	Occasional (winter)	Year-round	Winter	Year-round
Killer whale (*Orcinus orca*)[2]		Spring, summer, and fall				
North Atlantic right whale (*Eubalaena glacialis*)			Rare	Year-round		
North Pacific right whale (*Eubalaena japonica*)	Rare (winter)	Rare (winter)				
Sei whale (*Balaenoptera borealis*)	Year-round	Year-round	Rare	Year-round	Rare	Rare
Southern right whale (*Eubalaena australis*)						Year-round
Sperm whale (*Physeter macrocephalus*)	Year-round	Year-round	Year-round	Year-round	Year-round	Year-round
Pinnipeds						
Guadalupe fur seal (*Arctocephalus townsendi*)		California to Baja, Mexico (Year-round)				
Hawaiian monk seal (*Monachus schauinslandi*)	Year-round					

[1] Main Hawaiian Islands distinct population segment
[2] Southern resident distinct population segment

2.2.1. Cetaceans

A description of each ESA-listed cetacean that may be encountered in any of the proposed Study Areas is provided below.

2.2.1.1. Blue whale

Blue whales (*Balaenoptera musculus*) are listed as endangered and inhabit all oceans. Blue whales typically occur near the coast and over the continental shelf, though they are also found in oceanic waters. Blue whales, as a species, are thought to summer in high latitudes and move into the subtropics and tropics during the winter (Yochem and Leatherwood 1985). Historical blue whale observations collected by Reeves et al. (1997) show a broad longitudinal distribution in tropical and warm temperate latitudes during the winter months, with a narrower, more northerly distribution in summer.

In the western Atlantic, the blue whale is considered an occasional visitor in U.S. Atlantic waters (Cetacean and Turtle Assessment Program (CETAP) 1982; Wenzel, Mattila and Clapham 1988). Although the exact extent of their southern boundary and wintering grounds are not well understood, blue whales are occasionally found in waters off of the U.S. Atlantic coast (Waring et al. 2010). There are only two reliable records for blue whales in the Gulf of Mexico. The blue whale is one of the rarest cetacean species in the Gulf of Mexico (Jefferson and Schiro 1997; Würsig, Jefferson and Schmidly 2000) and some evidence suggests that they may occur infrequently in the Caribbean Sea (National Oceanic and Atmospheric Administration (NOAA) 2014a).

Within the eastern Pacific coast, their range includes the California Current System and the open ocean. Blue whales in the north Pacific are known to migrate between higher latitude feeding grounds of the Gulf of Alaska and the Aleutian Islands to lower latitude breeding grounds of California and Baja California, Mexico (Oleson et al. 2009). The west coast is known to be a feeding area for this species during summer and fall (Bailey and Thompson 2009; Carretta et al. 2011). In the winter they migrate to lower latitudes in the western Pacific and, less frequently, in the central Pacific, including Hawaii (Stafford, Nieukirk and Fox 2001).

Within the Southern Hemisphere, there are two subspecies of blue whales (*Balaenoptera musculus intermedia* and *Balaenoptera musculus brevicauda*). *B.m. intermedia* occurs mainly in relatively high latitudes south of the Antarctic Convergence and close to the ice edge, whereas *B.m. brevicada* normally occurs north of the Antarctic Convergence (National Oceanic and Atmospheric Administration (NOAA) 2014a). Therefore, only *B.m. brevicada* may be encountered in the Southern Hemisphere Study Area.

Blue whales are likely to occur within the western Atlantic and Pacific Study Areas, but are not likely to occur within the Hawaiian Pacific, Gulf of Mexico or the Caribbean Sea Study Areas. *B.m. brevicada* may be encountered in the Southern Hemisphere Study Area.

2.2.1.2. False killer whale

False killer whales (*Pseudorca crassidens*) of the Main Hawaiian Islands insular population are listed as endangered. The Main Hawaiian Islands insular stock are those considered resident to Kauai, Oahu, Molokai, Lanai, Kahoolawe, Maui, and Hawaii (National Marine Fisheries Service (NMFS) 2012). The National Marine Fisheries Service (NMFS) currently recognizes three stocks of false killer whale in Hawaiian waters: the Hawaii pelagic stock, the Northwestern Hawaiian Islands stock, and the Main Hawaiian Islands insular stock (Bradford et al. 2012; Carretta et al. 2012; Forney, Baird and Oleson 2010; Oleson et al. 2010).

False killer whales are usually found in groups of 10 to 20 and belong to much larger groups of up to 40 individuals in Hawaii. Individuals that are part of the insular Hawaiian population move widely among the islands, inhabiting waters up to 60 nautical miles (nm) from shore in shallow (<164 ft [50 m]) water to very deep (>13,123 ft [4,000 m]) (Oleson et al. 2010). Threats to false killer whales are bycatch and fishery interactions in the Hawaii longline fishery. A NMFS study of Hawaiian waters found false killer whales to be the least abundant of the 18 species of toothed whales in Hawaii. This insular population has declined dramatically over the past 20 years (Waring et al. 2010). The 2012 stock assessment report gives the most recent best estimate of Main Hawaiian Islands insular false killer whales at about 151 individuals (Carretta et al. 2013).

Endangered false killer whales are likely to occur in Pacific Ocean waters around Hawaii and do not occur in the Eastern Pacific, Gulf of Mexico, western Atlantic, Caribbean Sea, or Southern Hemisphere Study Areas.

2.2.1.3. Fin whale

Fin whales (*Balaenoptera physalus*) are listed as endangered and inhabit all oceans. Fin whales usually occur in temperate to polar latitudes and less commonly in warm tropical waters (Reeves et al. 2002).

In the western Atlantic, fin whales are common in waters off the U.S. east coast, principally from Cape Hatteras northward (Cetacean and Turtle Assessment Program (CETAP) 1982). Their summer foraging areas are from the east coast of North America to the Arctic (U.S. Department of Commerce and National Marine Fisheries Service 2010). The open ocean range of the fin whale includes the Gulf Stream, North Atlantic Gyre, and Labrador Current. Their general range in the Atlantic is from the Arctic Circle to the Greater Antilles, but are considered rare in the Caribbean and Gulf of Mexico (Ward, Moscrop and Carlson 2001).

In the Pacific Ocean, fin whales have been documented from 60° North (N) to 23° N, and have frequently been recorded in waters off the southern California coast (Carretta et al. 2011; Mizroch et al. 2009). Aggregations of fin whales are present year-round in southern and central California (Forney, Barlow and Carretta 1995). Fin whales are distributed across the North Pacific during the summer (May through October) from the southern Chukchi Sea (69 °N) south to the Subarctic Boundary (approximately 42 °N) and to 30 °N in the California Current (Mizroch et al. 1999). During the winter (November through April), fin whales are sparsely distributed from 60 °N, south to the northern edge of the tropics, near which it is assumed that mating and calving take place (Mizroch et al. 1999).

Fin whales are considered rare in Hawaiian waters and even more so in eastern tropical Pacific waters (Hamilton et al. 2009). Eight to twelve fin whales were observed feeding on 20 May 1966 approximately 240 mi south of Honolulu (Balcomb 1987). In May of 1976 and February of 1979 additional sightings of fin whales in Hawaiian waters were reported (Shallenberger 1981). In February of 1994, a single fin whale was observed north of Kaui (Mobley et al. 1996) and five sightings were made during a 2002 survey within the U.S. Exclusive Economic Zone of the Hawaiian Islands (Barlow 2003).

In the Southern Hemisphere, fin whales inhabit the high Antarctic, but great numbers of their summer distribution occurs in the middle latitudes, mainly around 40 to 60 °S in the South Atlantic oceans, but at 50 to 65 °S in the South Pacific (Miyashita, Kato and Kasuya 1996). Their winter distribution is not well known, but data from whaling catch indicate that they were formally common off of southern Africa in the winter and became scarce following the depletion of the species in the Southern Ocean and are now considered rare in these waters (Best 2003).

Fin whales are likely to occur within all areas of the western Atlantic and eastern Pacific Oceans of the Study Area and are not likely to occur within the Hawaiian Pacific, Gulf of Mexico, Caribbean Sea or Southern Hemisphere Study Areas.

2.2.1.4. Humpback whale

Humpback whales (*Megaptera novaengliae*) are listed as endangered and inhabit all oceans. They typically are found during the summer on high-latitude feeding grounds and during the winter in the tropics and subtropics around islands, over shallow banks, and along continental coasts, where calving occurs. Most humpback whale sightings are in nearshore and continental shelf waters; however, humpback whales frequently travel through deep oceanic waters during migration (Calambokidis et al. 2001; Clapham and Mattila 1990). Humpback feeding habitats are typically shallow banks or ledges with high seafloor relief (Hamazaki 2002; Payne, Heinemann and Selzer 1990).

In the western North Atlantic Ocean, humpback whales feed during spring, summer, and fall over a range that encompasses the eastern coast of the U.S. (including the Gulf of Maine), the Gulf of St. Lawrence, Newfoundland/ Labrador, and western Greenland. In winter, whales from the Gulf of Maine mate and calve primarily in the West Indies. Not all whales migrate to the West Indies every winter, and significant numbers of animals are found in mid- and high-latitude regions at this time (National Oceanic and Atmospheric Administration (NOAA) 2014a).

Humpback whales in the North Pacific are distributed in the following wintering areas: the Hawaiian Islands, the Revillagigedo Islands off Mexico, and along the coast of mainland Mexico (Calambokidis et al. 2001). During summer months, North Pacific humpback whales feed in a nearly continuous band from southern California to the Aleutian Islands (Calambokidis et al. 2001). The Central North Pacific stock of humpback whales occurs throughout known breeding grounds in Hawaii during winter and spring (November through April) (Allen and Angliss 2010). Peak occurrence around the Hawaiian Islands is from late February through early April (Au et al. 2000; Carretta et al. 2011). During the fall-winter period, primary occurrence is expected from the coast to 50 nm (93 km) offshore (Au et al. 2000; Mobley Jr. 2004).

The California, Oregon, and Washington stock of humpback whales use the waters within southern California as a summer feeding ground. Peak abundance occurs in southern California from December through June (Calambokidis et al. 2001). While there are exceptions, the vast majority of humpback whales that feed off Washington, Oregon, and California breed in waters off mainland Mexico and Central America (Barlow et al. 2011).

The International Whaling Commission has designated seven major breeding stocks of humpback whales in the Southern Hemisphere. Most of these breeding stocks are at 20 °S, including areas along the west coast of Africa and Central America. All Southern Hemisphere humpbacks occur in the same feeding grounds in the Antarctic south of 40 °S and between 120 °E and 110 °W (National Oceanic and Atmospheric Administration (NOAA) 2014a). In the winter, Southern Hemisphere whales aggregate into specific nearshore breeding areas in the Atlantic, Indian, and Pacific Oceans, two of which extend north of the equator, i.e. off Colombia in the eastern Pacific and in the Bight of Benin in the Atlantic (Reilly et al. 2008).

Humpback whales are likely to occur in all of the Study Areas; however, they would only occur in the winter in Hawaii. In all Study Areas, their occurrence would be associated with the nearshore waters of the continental shelf and not in waters of the high seas.

2.2.1.5. Killer whale

Killer whales (*Orcinus orca*) of the southern resident distinct population segment are listed as endangered. Killer whales are found in all marine habitats, from the coastal zone (including most bays and inshore channels) to deep oceanic basins and from equatorial regions to the polar pack ice zones of both hemispheres. Although killer whales are also found in tropical waters and the open ocean, they are generally most numerous in coastal waters and at higher latitudes (Dahlheim and Heyning 1999). In most areas of their range, killer whales do not show movement patterns that would be classified as traditional migrations. However, there are often seasonal shifts in density, both onshore/offshore and north/south.

The southern resident killer whale distinct population segment is a trans-boundary population that resides, for part of the year, in the protected inshore waters of the Strait of Georgia and Puget Sound (especially in the vicinity of Haro Strait, west of San Juan Island, and off the southern tip of Vancouver Island) principally during the late spring, summer, and fall (Ford, Ellis and Balcomb 1994; Krahn et al. 2004). Pods have visited coastal sites off Washington and Vancouver Island (Ford, Ellis and Balcomb 1994) and are known to travel as far south as central California and as far north as the Queen Charlotte Islands. The overall range of the southern resident killer whale in winter is unknown.

In 2006, critical habitat for the southern resident killer whale was designated by NMFS. This critical habitat includes the Haro Strait, San Juan Islands, Puget Sound, and Strait of Juan de Fuca. These areas comprise of approximately 1,933 square nautical miles (nm^2) (50 CFR Part 226).

ESA-listed killer whales are likely to occur within the Pacific Study Area near Washington and in waters deeper than the continental shelf. ESA-listed killer whales do not occur in the western Atlantic, Gulf of Mexico, Caribbean, or Southern Hemisphere Study Areas.

2.2.1.6. North Atlantic right whale

North Atlantic right whales (*Eubalaena glacialis*) are listed as endangered and occur in the Atlantic Ocean. The North Atlantic right whale has been sighted in the Gulf of Mexico, but the sighting records probably are of rare individuals that stray from wintering grounds off the southeastern U.S. (Jefferson and Schiro 1997). New England waters are an important feeding habitat for right whales, which feed primarily on copepods in this area.

The North Atlantic right whale population ranges primarily from calving grounds in coastal waters of the southeastern U.S. to feeding grounds in New England waters. The coastal waters of Georgia and Florida in the southeastern U.S., and portions of Cape Cod Bay, Stellwagen Bank, and the Great South Channel off the coast of Massachusetts, were designated as critical habitat by NMFS in 1994 (50 CFR 226). However, movements within and between habitats are extensive. Systematic surveys conducted off the coast of North Carolina suggest that calving grounds may extend as far north as Cape Fear (McLellan et al. 2004). Since 2004, consistent aerial survey efforts have been conducted during the migration and calving season (15 November to 15 April) in coastal areas of Georgia and South Carolina, to the north of currently defined critical habitat (Glass and Taylor 2006; Khan and Taylor 2007; Sayre and Taylor 2008). Results suggest that this region may not only be part of the migratory route but also a seasonal residency area. Results from an analysis by Schick et al. (2009) suggest that the migratory corridor of North Atlantic right whales is broader than initially estimated and that suitable habitat exists beyond the 20 nm (37 km) coastal buffer presumed to represent the primary migratory pathway (Oceanic and Atmospheric Administration 2008).

North Atlantic right whales are likely to occur within the western Atlantic Study Area, and not likely to occur in the Gulf of Mexico. This species does not occur within the Pacific, Caribbean, or Southern Hemisphere Study Areas.

2.2.1.7. North Pacific right whale

North Pacific right whales (*Eubalaena japonica*) are listed as endangered and occur in the Pacific Ocean. The likelihood of a North Pacific right whale being present in the proposed Study Area is extremely low as this species has only been observed rarely in the Bering Sea and Gulf of Alaska in recent years. The only recently recorded sighting of a right whale in the southern California area occurred in March 1992 approximately 37 nm (69 km) off the southern end of San Clemente Island (Carretta, Lynn and LeDuc 1994). Based on this information, it is highly unlikely for this species to be present in the Study Area.

NMFS designated critical habitat for the North Pacific right whale in 2006. These areas include a large portion of the Bering Sea and a small area in the Gulf of Alaska south of Kodiak Island. These areas comprise of approximately 48,139 nm^2 (73 FR 19000).

North Pacific right whales may occur in the Hawaiian Pacific and eastern Pacific Study Area in the winter. This species does not occur within the western Atlantic, Gulf of Mexico, Caribbean, or Southern Hemisphere Study Areas.

2.2.1.8. Sei whale

Sei whales (*Balaenoptera borealis*) are listed as endangered and inhabit all oceans. Sei whales are most often found in deep, oceanic waters of the cool temperate zone and are rarely observed near the coast (Horwood 2002; Jefferson, Webber and Pitman 2008). They appear to prefer regions of steep bathymetric relief, such as the continental shelf break, canyons, or basins situated between banks and ledges (Best and Lockyer 2002; Gregr and Trites 2001; Kenney and Winn 1987; Schilling et al. 1992). These areas are often the location of persistent hydrographic features, which may be important factors in concentrating zooplankton, especially copepods. On the feeding grounds, the distribution is largely associated with oceanic frontal systems (Horwood 1980).

Sei whales spend the summer feeding in subpolar high latitudes and return to lower latitudes to calve in winter. They are generally found between 10 °N and 70 °N latitudes. Satellite tagging data indicate that sei whales feed and migrate east to west across large sections of the north

Atlantic (Olsen et al. 2009); they are not often seen within the equatorial Atlantic. There are only five reliable sei whale records for the Gulf of Mexico (Würsig, Jefferson and Schmidly 2000). Sei whales are uncommon in most tropical regions, and based on the scarcity of records for this species in the Gulf, any sightings there would be considered extralimital for this species (Jefferson and Schiro 1997). Therefore, sei whales are not expected to occur in the Gulf of Mexico, or Caribbean Sea.

In the North Pacific, sei whales are thought to occur mainly south of the Aleutian Islands. They are present all across the temperate North Pacific north of 40 °N (National Marine Fisheries Service 1998) and are seen at least as far south as 20 °N (Horwood 1980). Whaling data suggest that the northern limit for this species is about 55 °N (Gregr et al. 2000). In the east, they range as far south as Baja California, and Mexico (National Marine Fisheries Service (NMFS) 2011). They are generally found feeding along the California Current (Perry, DeMaster and Silber 1999). There are records of sightings in California waters as early as May and June, but primarily are encountered there during July to September and leave California waters by mid-October.

During the summer, sei whales of the Southern Hemisphere occur from 40 to 50 °S within the South Atlantic and between 45 and 60 °S in the South Pacific (Miyashita, Kato and Kasuya 1996). During the winter months, they inhabit former low-latitude whaling grounds, including northeastern Brazil (da Roch 1983), Peru (Valdivia et al. 1982) and off of Angola and the Congo (International Whaling Commission 2006).

Sei whales are likely to occur within the western Atlantic, eastern Pacific, and Southern Hemisphere Study Areas. They are not likely to occur within the Hawaiian Pacific, Gulf of Mexico, or Caribbean Study Areas.

2.2.1.9. Southern Right Whale

Southern right whales (*Eubalaena australis*) are listed as endangered and inhabit oceans throughout the Southern Hemisphere from temperate to polar latitudes (20° S and 60 °S latitude). The feed in higher latitudes, including South Georgia Islands and Shag Rocks, located near Cape Horn. In South Africa, southern right whales inhabit areas along the Cape coast between Muizenberg and Woody Cape. They also occur off Peru, Chile, Namibia, Madagascar, and Mozambique, though not much is known about these whales in these areas, because sightings have been infrequent and not as much research has been conducted on these populations (National Oceanic and Atmospheric Administration (NOAA) 2014a).

Southern right whales are likely to occur within the Southern Hemisphere Study Area. They do not occur within the Hawaiian Pacific, eastern Pacific, Gulf of Mexico, western Atlantic, or Caribbean Sea Study Areas.

2.2.1.10. Sperm whale

Sperm whales (*Physeter macrocephalus*) are listed as endangered and inhabit all oceans. Sperm whales are found in polar to tropical waters in all oceans, from approximately 70 °N to 70 °S (Rice 1998). Females are normally restricted to areas with sea-surface temperatures greater than

59 degrees Fahrenheit (°F; 15 degrees Celsius [°C]), whereas males, especially the largest males, can be found in waters bordering pack ice (Rice 1989). Sperm whale distribution can be variable, but is generally associated with waters over the continental shelf edge, continental slope, and offshore waters (Cetacean and Turtle Assessment Program (CETAP) 1982; Davis et al. 2002; Fiscus, Rice and Wolman 1989; Hain et al. 1985; Reeves and Whitehead 1997; Rice 1989; Smith et al. 1996; Waring et al. 2001).

Distribution along the east coast of the U.S. is centered along the shelf break and over the slope. During winter, high densities occur in inner slope waters east and northeast of Cape Hatteras, North Carolina (National Marine Fisheries Service (NMFS) 2010; Palka 2006; Waring et al. 2010). Waring et al. (1993) suggest that this offshore distribution is more commonly associated with the Gulf Stream edge and other features. In spring, distribution shifts northward to Delaware and Virginia, and the southern portion of Georges Bank. Summer and fall distribution is similar, extending to the eastern and northern portions of Georges Bank and north into the Scotian Shelf. Occurrence south of New England on the continental shelf is highest in the fall (Waring et al. 2010).

The sperm whale is the most common large cetacean in the northern Gulf of Mexico (Palka and Johnson 2007). The distribution of sperm whales in the Gulf of Mexico is strongly linked to surface oceanography, such as loop current eddies that locally increase production and availability of prey (O'Hern and Biggs 2009). Sperm whales aggregate at the mouth of the Mississippi River and along the continental slope in or near cyclonic cold-core eddies (counterclockwise water movements in the northern hemisphere with a cold center) (Davis et al. 2007). In the north-central Gulf of Mexico, sperm whales are especially common near the Mississippi Canyon, where some are present year-round. The Mississippi River Delta is an area of known sperm whale occurrence as the continental shelf is very narrow and extends the nutrient-rich river plume into deep waters where primary productivity and zooplankton abundance are amplified (Baumgartner et al. 2001; Davis et al. 2002).

The occurrence of sperm whams within the eastern Caribbean Sea (islands of Dominica, Guadeloupe, Grenada, St. Lucia and Martinique) has been researched by Gero et al. (2007), who, based on high regional resightings of photo-identified whales, concluded that the population of sperm whales was small and quite isolated. Additionally, no matches were made from individuals photo-identified in the eastern Caribbean Sea with either animals from the Sargasso Sea or the Gulf of Mexico. Gero et al. (2007) suggested that movements of sperm whales between the adjacent areas of the Caribbean Sea, Gulf of Mexico and Atlantic may not be common.

Sperm whales are found year-round in California waters (Barlow 1995; Forney and Barlow 1993). Sperm whales are known to reach peak abundance from April through mid-June and from the end of August through mid-November (Forney, Barlow and Carretta 1995). Two strandings of sperm whales in Oregon were recorded in 1970 and 1979.

Sperm whales have been sighted around several northwestern Hawaiian Islands (Rice 1960; Barlow 2006), off the main island of Hawaii (Lee 1993; Mobley et al. 2000) in the Kauai Channel and in the Alenuihaha Channel between Maui and the island of Hawaii (Shallenberger

1981). Sperm whale sounds have also been recorded throughout the year off of Oahu (Thompson and Friedl 1982). Based on habitat preference, the sperm whale is expected to occur seaward of the 3,281 ft (1,000 m) isobaths in the Pacific Northwest. Secondary occurrence between the 656 ft (200 m) and 3,281 ft (1,000 m) isobaths, accounts for the possibility of sightings in more shallow waters. Sperm whale occurrence in waters between the shore and the 656 ft (200 m) isobath is expected to be rare since this species prefers deep waters (Department of the Navy (DoN) 2006).

In the Southern Hemisphere sperm whales inhabit the coasts of southern Africa and South America year round (Berzin 1971). The southernmost boundary of the sperm whales in the South Atlantic appears to be around 50 to 54 °S.

Sperm whales are likely to occur within all the Study Areas, especially along the portions of the transit located along the continental shelf and slope.

2.2.2. Pinnipeds

A description of each ESA-listed pinniped that may be encountered in any of the proposed Study Areas is provided below.

2.2.2.1. Guadalupe fur seal

Guadalupe fur seals (*Arctocephalus townsendi*) are listed as endangered and occur in the Pacific Ocean near southern California. The Guadalupe fur seal is typically found on shores with abundant large rocks, often at the base of large cliffs. They are also known to inhabit caves, which provide protection and cooler temperatures, especially during the warm breeding season (Belcher and Lee Jr. 2002). Guadalupe fur seals are most common at Guadalupe Island, Mexico, which is their primary breeding ground (Melin and DeLong 1999). A second rookery was found in 1997 at the San Benito Islands off Baja California (Maravilla-Chavez and Lowry 1999). Adult and juvenile males have been observed at San Miguel Island, California (Melin and DeLong 1999). Sightings have also occurred at Santa Barbara, San Nicolas, and San Clemente Islands (Stewart 1981; Stewart et al. 1993).

Guadalupe fur seals can be found in deeper waters of the California Current System (Hanni et al. 1997; Jefferson, Webber and Pitman 2008). Adult males, juveniles, and nonbreeding females may live at sea during some seasons or for part of a season (Reeves, Stewart and Leatherwood 1992). Several observations suggest that this species travels alone or in small groups of fewer than five (Belcher and Lee Jr. 2002; Seagars 1984). Guadalupe fur seals movements at sea are generally unknown, but strandings have been reported in northern California and as far north as Washington (Etnier 2002). The northward movement of this species possibly has resulted from an increase in its populations (Etnier 2002).

The Guadalupe fur seal is most likely in coastal areas of California and Mexico in the eastern Pacific Study Area. This species does not occur in the Hawaiian Pacific, western Atlantic, or Gulf of Mexico, Caribbean Sea, or Southern Hemisphere Study Areas.

2.2.2.2. Hawaiian monk seal

Hawaiian monk seals (*Monachus schauinslandi*) are listed as endangered and occur in the Pacific Ocean around Hawaii throughout the year. The Hawaiian monk seal is the only endangered marine mammal whose range is entirely within the U.S. (National Marine Fisheries Service (NMFS) 2007). Hawaiian monk seals are managed as a single stock. There are six main reproductive subpopulations: at French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef, Midway Island, and Kure Atoll in the northwestern Hawaiian Islands with small numbers also occurring at Necker, Nihoa, and the main Hawaiian Islands (National Marine Fisheries Service 2008).

Monk seals spend most of their time at sea in nearshore, shallow marine habitats (Littnan et al. 2007). Monk seals are particularly susceptible to fishery interactions and entanglements, especially derelict fishing gear which is seen as the top threat. Currently, the best estimate for the total population of monk seals is 1,212 (Carretta et al. 2013). The total number in the main Hawaiian Islands is estimated to be around 153 animals (Carretta et al. 2013).

In 1986, critical habitat was designated for all beach areas, sand spits, and islets (including all beach crest vegetation to its deepest extent inland), lagoon waters, inner reef waters, and ocean waters to a depth of 59 ft (18 m) around Kure Atoll, Midway Islands (except Sand Island), Pearl and Hermes Reef, Lisianski Island, Laysan Island, Gardner Pinnacles, French Frigate Shoals, Necker Island, and Nihoa Island in the northwestern Hawaiian Islands. In 1988, the critical habitat was extended to include Maro Reef and waters around previously recommended areas out to the 120 ft (36.6 m) isobath (53 FR 18988-18998 1988). In June 2011, NMFS proposed that critical habitat in the northwestern Hawaiian Islands be expanded to include Sand Island at Midway and ocean waters out to a depth of 1,650 ft (500 m) and that six new extensive areas in the main Hawaiian Islands be added (50 Code of Federal Regulations [C.F.R.] Part 226).

The Hawaiian monk seal is most likely in coastal areas and is not likely to occur in the open ocean of the Hawaiian Pacific Study Area. This species does not occur in the eastern Pacific, Gulf of Mexico, western Atlantic, Caribbean Sea, or Southern Hemisphere Study Areas.

2.3. SEA TURTLES

A description of each ESA-listed sea turtle that may be encountered in any of the proposed Study Areas is provided below. Table 2~~Table 3~~ lists these species and summarizes their potential occurrence in each area.

Table 23: ESA-listed Sea Turtles Occurrence in Proposed Study Areas

Species	Hawaiian Pacific	Eastern Pacific	Gulf of Mexico	Western Atlantic	Caribbean Sea	Southern Atlantic
Green (*Chelonia mydas*)	Year-round	Year-round	Year-round	Year-round	Year-round	Year-round
Hawksbill (*Eretmochelys imbricata*)	Year-round	Year-round (Baja peninsula; Guatemala to Ecuador)	Rare	Year-round	Year-round	
Kemp's ridley (*Lepidochelys kempii*)			Year-round	Year-round		
Leatherback (*Dermochelys coriacea*)	Year-round	Year-round	Year-round	Year-round	Year-round	Year-round
Loggerhead (*Caretta caretta*)	Rare	Year-round	Year-round	Year-round	Year-round	Year-round
Olive ridley (*Lepidochelys olivacea*)	Rare	Year-round		Rare		

2.3.1. Green sea turtle

The green sea turtle (*Chelonia mydas*) inhabits all oceans. The green sea turtle is listed as two populations under the ESA: (1) the Florida and Mexico Pacific coast breeding colonies and (2) sea turtles from all other populations. The breeding colonies on the coast of Florida and Pacific coast of Mexico are designated as endangered and all other colonies are designated as threatened (43 FR 32800-32811 1978). In 1998, critical habitat was designated for green sea turtles in coastal waters around Culebra Island, Puerto Rico, from the mean high water line seaward to 3 nm to include Culebra's outlying Keys (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998a).

The green sea turtle is distributed worldwide across tropical and subtropical coastal waters between 45 °N and 40 °S (The State of the World's Sea Turtles 2011). After emerging from the nest, green turtle hatchlings swim to offshore areas where they float passively in major current systems. Post-hatchling green turtles forage and develop in floating *Sargassum* habitats of the open ocean. At the juvenile stage (estimated at 5 to 6 years) they leave the open-ocean habitat and retreat to protected lagoons and open coastal areas that are rich in seagrass or marine algae (Bresett, Singewald and DeMaye 2006), where they will spend most of their lives (Bjorndal and Bolten 1988). The optimal developmental habitats for late juveniles and foraging habitats for adults are warm shallow waters 9.8 to 16 ft (3 to 5 m) deep with abundant submerged aquatic vegetation and close to nearshore reefs or rocky areas (Holloway-Adkins 2006; Seminoff, Resendiz and Nichols 2002).

In the western Atlantic, the highest concentration of green turtles occurs during winter just north of Cape Canaveral, a known wintering area for juveniles. Juvenile green turtles are the second-most abundant sea turtle species in North Carolina summer developmental habitats, occurring year-round within continental shelf waters, while adults are restricted to more southern latitudes (Epperly, Braun and Veishlow 1995). Most green sea turtle sightings north of Florida are of juveniles and occur during late spring to early fall (Burke et al. 1992; Epperly, Braun and Chester 1995; Lazell 1980). Juveniles use the estuarine and nearshore waters of central Florida throughout the year, including Pensacola Bay, St. Joseph Bay, Charlotte Harbor, Cedar Keys, Homosassa Springs, Crystal River, and Tampa Bay (Renaud et al. 1995).

In the northern Gulf of Mexico, green sea turtles prefer the coastal habitats of southern Texas (e.g., lagoons, channels, inlets, bays) including Texas' Laguna Madre (Renaud et al. 1995). As water temperatures rise from April to June, green sea turtle numbers increase in the continental shelf waters off Galveston Bay and in those waters associated with the continental shelf break northeast of Corpus Christi. The sparse sighting records in Louisiana and Texas waters, as well as nesting records on the southern Texas coast, indicate that green turtles are found in the northwestern Gulf of Mexico during spring but in far fewer numbers than in the northeastern Gulf. Suitable nesting beaches are located throughout the Gulf region, from the shores of northern Mexico and southern Texas in the western Gulf of Mexico to southern Florida and the Florida panhandle in the eastern Gulf of Mexico.

One of the largest nesting populations of green sea turtles is located in Tortuguero on the Caribbean coast of Costa Rica. Here, approximately 22,500 females nest each breeding season (National Oceanic and Atmospheric Administration (NOAA) 2014b). Foraging adults and juveniles can be found throughout the Greater Caribbean year-round (Bjorndal, Bolten and Chaloupka 2005).

In the eastern Pacific, green sea turtles are widely distributed in the subtropical coastal waters of southern Baja California, Mexico, and Central America (Clifton 1995; National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998a). The main group of eastern Pacific Ocean green sea turtles is found on the breeding grounds of Michoacán, Mexico, from August through January and year-round in the feeding areas, such as those on the western coast of Baja California, along the coast of Oaxaca, and in the Gulf of California (the Sea of Cortez) (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998a). Bahia de Los Angeles in the Gulf of California has been identified as an important foraging area for green sea turtles (Seminoff et al. 2003). The western coasts of Central America, Mexico, and the U.S. constitute a shared habitat for this population (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998a). The green sea turtle is not known to nest on southern California beaches. Ocean waters off southern California and northern Baja California, are also designated as areas of occurrence because of the presence of rocky ridges and channels and floating kelp habitats suitable for green sea turtle foraging and resting (Stinson 1984); however, these waters are often at temperatures below the thermal preferences of this primarily tropical species. Due to the warm water habitat preference the green sea turtle is not expected to occur off the coasts of Oregon or Washington, but would occur off the coast of California.

In the central Pacific, green sea turtles inhabit waters around most tropical islands, including the Hawaiian Islands. Adult green sea turtles forage through the main Hawaiian Islands and under long migrations to the French Frigate Shoals in the Northwestern Hawaiian Islands. This area is where the majority of their nesting and mating occur (National Oceanic and Atmospheric Administration (NOAA) 2014b).

Green sea turtles do not normally inhabit areas as far south as the Southern Ocean, directly south of the tip of Cape Horn. However, within the Southern Hemisphere, they can be found year-round foraging in areas of the South Pacific and South Atlantic oceans (National Oceanic and Atmospheric Administration (NOAA) 2014b).

Green turtles are likely to occur in the continental shelf and warm shallow waters of all Study Areas. They are not likely to occur in the high seas.

2.3.2. Hawksbill sea turtle

Hawksbill sea turtles (*Eretmochelys imbricata*) are listed as endangered and inhabits tropical and subtropical seas of the Atlantic and Pacific oceans. The hawksbill is the most tropical of the world's sea turtles, rarely occurring above 35 °N or below 30 °S (Seminoff et al. 2003). Critical habitat was designated for hawksbill terrestrial nesting areas in Puerto Rico by NMFS in 1982 (50 CFR § 17 1982). Critical marine habitat was designated by NMFS in 1998 for the coastal waters surrounding Mona and Monito Islands, Puerto Rico, from the mean high water line seaward to 3 nm (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998b).

Hatchlings are believed to occupy open-ocean waters, associating themselves with surface algal mats in the Atlantic Ocean (Parker 1995; Seminoff et al. 2003; Witherington and Hirama 2006). Juveniles leave the open-ocean habitat after 3 to 4 years and settle in coastal foraging areas, typically in coral reefs, but occasionally in seagrass beds, algal beds, mangrove bays, and creeks (Mortimer and Donnelly 2009). Juveniles and adults share the same foraging areas, including tropical nearshore waters associated with coral reefs, hardbottoms, or estuaries with mangroves (Musick and Limpus 1997). In nearshore habitats, resting areas for late juvenile and adult hawksbills are typically in deeper waters, such as sandy bottoms at the base of a reef flat (Houghton, Callow and Hays 2003). As they mature into adults, hawksbills move to deeper habitats and may forage to depths greater than 295 ft (90 m). During this stage, hawksbills are seldom found in waters beyond the continental or insular shelf unless they are in transit between distant foraging and nesting grounds (Renaud et al. 1995; Shaver and Rubio 2007; Shaver et al. 2005).

While hawksbills are known to occasionally migrate long distances in the open ocean, they are primarily found in coastal habitats and use nearshore areas more exclusively than other sea turtles. Despite a lack of information regarding the hawksbill turtle's use of the open ocean in all life stages, they have been reported rarely off of Cape Cod and in North Carolina (Seminoff et al. 2003). Due to these sightings and the relative warmth of the Gulf Stream into the higher latitudes of the North Atlantic, hawksbills are assumed to be present in the western Atlantic coastal and open ocean areas.

Hawksbill turtles occur regularly in the nearshore waters of southern Florida and the Gulf of Mexico (National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) 2007). The greatest hawksbill turtle numbers in the southeastern U.S. are found in the fall off southern Florida. There, hawksbills are documented from winter to summer from Palm Beach to the Florida Keys, and to coastal waters just northwest of Tampa Bay, where the northernmost stranding records typically occur (National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) 2007).

In the Gulf of Mexico, rare hawksbill turtle sightings occur in waters off the Florida Panhandle, Alabama, Mississippi, Louisiana, and Texas (Rabalais and Rabalais 1980; Rester and Condrey 1996; Seminoff et al. 2003), these individuals, are likely the early juveniles born on nesting beaches in Mexico that have drifted north with the dominant currents (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1993).

Hawksbill turtles inhabit areas throughout the Caribbean Sea, but are more commonly found in the vicinity of Puerto Rico and the islands of Mona, Culebra, Vieques, and the U.S. Virgin Islands. Many hawksbills nest on these islands and on the beaches of Puerto Rico (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1993).

In the eastern Pacific, water temperature in the Pacific Northwest and southern California region of the Study Area is generally too low for hawksbills, and their occurrence is rare. Nesting is rare in the eastern Pacific Ocean region, and does not occur along the U.S. west coast (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998b; Seminoff et al. 2003). If hawksbills were to occur in the southern California region, it would most likely be during an El Niño event, when waters along the California current are unusually warm (National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) 2007).

Hawksbill turtles nest on the main island beaches in Hawaii in the central Pacific, primarily along the east coast of the island of Hawaii (National Oceanic and Atmospheric Administration (NOAA) 2014b). Their nesting season begins in April and extends through February with a peak in egg laying around late-July to mid-September. The largest distribution of nesting hawksbill turtles occurs on the southern coast of Hawaii Island, with an estimated 80,775 hatchlings entering the Pacific Ocean from Hawaii Island. Hawksbill turtles can be found around the Hawaiian Islands year-round, with peak sighting during the nesting season (Seitz and Kagimoto 2012).

Hawksbill sea turtles are likely to occur within the Hawaiian Pacific, eastern Pacific (more commonly from the Baja peninsula to Ecuador), western Atlantic, and Caribbean Sea Study Areas. They are not expected to occur in the Gulf of Mexico Study Area. They do not occur within the Southern Hemisphere Study Area.

2.3.3. Kemp's ridley sea turtle

Kemp's ridley sea turtles (*Lepidochelys kempii*) are listed as endangered and occur in the Atlantic Ocean and Gulf of Mexico. Habitats frequently used by Kemp's ridley sea turtles in

U.S. waters are warm-temperate to subtropical sounds, bays, estuaries, tidal passes, shipping channels, and beachfront waters, where their preferred food, the blue crab, is abundant (Lutcavage and Musick 1985; Seney and Musick 2005). Adult female Kemp's ridley sea turtles take part in mass synchronized nesting emergences known as "arribadas" on only a few nesting beaches; this nesting strategy is unique to *Lepidochelys* spp. The nesting season in the western North Atlantic and Gulf of Mexico Study Areas occur from April through July.

In the western Atlantic, evidence suggests that post-hatchling and small juvenile Kemp's ridley sea turtles, similar to loggerhead and green sea turtles, forage and develop in floating *Sargassum* habitats of the North Atlantic Ocean. Juveniles migrate to habitats along the Atlantic continental shelf from Florida to New England (Morreale et al. 1992; Peña 2006) at around two years of age. Migrating juvenile Kemp's ridleys travel along coastal corridors in waters generally shallower than 164 ft (50 m) in bottom depth (U.S. Department of Commerce and National Marine Fisheries Service 2010). Suitable developmental habitats are seagrass beds and mud bottoms in waters of less than 33 ft (10 m) bottom depth and with sea surface temperatures between 72 °F and 90 °F (22 °C and 32 °C) (Coyne, Monaco and Landry 2000). In the spring, Kemp's ridleys in south Florida begin to migrate northward. As waters become warmer, Kemp's ridley turtles travel as far north as Long Island Sound and even Nova Scotia (Bleakney 1955). Satellite telemetry data suggest that turtles migrate south in October and November within the Southeast U.S.—from Georgia and northern Florida to the waters south of Cape Canaveral—and return to their summer foraging grounds in March and April. The offshore waters south of Cape Canaveral are identified as an important overwintering area for turtles foraging in Atlantic coastal waters (Henwood 1987; Schmid 1995).

In the Gulf of Mexico, the Kemp's ridley occurs year-round in the coastal waters from the Yucatán peninsula to south Florida (Lazell 1980; Morreale et al. 1992). The entire population nests in the Gulf of Mexico, along a stretch of beaches from southern Texas to the Yucatán peninsula. Key foraging sites on the west coast of Florida include Charlotte Harbor and Gullivan Bay (Witzell and Schmid 2005). Important year-round developmental habitats in the northern Gulf of Mexico include the western coast of Florida (particularly the Cedar Keys area), the eastern coast of Alabama, and the mouth of the Mississippi River (Lazell 1980; Lutcavage and Musick 1985; Márquez-Millán 1990; Márquez-Millán 1994; National Marine Fisheries Service (NMFS) 1992; Schmid et al. 2002; Weber 1995). Coastal waters off western Louisiana and eastern Texas also provide adequate habitats for bottom feeding. As adults, many turtles remain in the Gulf of Mexico, with only occasional occurrence in the Atlantic Ocean.

Kemp's ridley sea turtles are likely to occur within the western Atlantic and Gulf of Mexico Study Areas. They do not occur in the Hawaiian Pacific, eastern Pacific, Caribbean Sea or Southern Hemisphere Study Areas.

2.3.4. Leatherback sea turtle

Leatherback sea turtles (*Lepidochelys kempii*) are listed as endangered. The leatherback turtle is the most widely distributed of all sea turtles, found from tropical to subpolar oceans, and nests on tropical and occasionally subtropical beaches (Gilman et al. 2006; Myers and Hays 2006; National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1992). NMFS designated critical habitat for the leatherback sea turtle in 1979 to include waters adjacent to Sandy Point Beach, St. Croix, within the U.S. Virgin Islands, up to and including the waters from the hundred fathom curve shoreward to the level of mean high tide with boundaries at 17'42'21" N and 64'50'00" W (44 FR 17710). In 2012 NMFS designated additional critical habitat for this species to include approximately 16,910 mi^2 (43,798 km^2) stretching along the California coast from Point Arena to Point Arguello east of the 9,843 ft (3,000 m) depth contour and 25,004 mi^2 (64,760 km^2) stretching from Cape Flattery, Washington, to Cape Blanco, Oregon, east of the 6,562 ft (2,000 m) depth contour. This designated area comprises of approximately 41,910 mi^2 (108,558 km^2) of marine habitat and includes waters from the ocean surface down to a maximum depth of 262 ft (80 m) (77 FR 4170).

Found from 71 °N to 47 °S, it has the most extensive range of any adult turtle (Eckert 1995). Adult leatherback turtles forage in temperate and subpolar regions in all oceans, and migrate to tropical nesting beaches between 30 °N and 20 °S. Leatherbacks have a wide nesting distribution, primarily on isolated mainland beaches in tropical oceans (mainly in the Atlantic and Pacific Oceans) (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1992), and to a lesser degree on some islands.

Limited information is available on the habitats used by post-hatchling and early juvenile leatherback sea turtles (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1992). These life stages are restricted to waters warmer than 79 °F (26 °C); consequently, much time is spent in the tropics (Eckert 2002). Upwelling areas, such as equatorial convergence zones, serve as nursery grounds for post-hatchling and early juvenile leatherback sea turtles because these areas provide a high biomass of prey (Musick and Limpus 1997). Late juvenile and adult leatherback sea turtles are known to range from mid-ocean to the continental shelf and nearshore waters (Grant and Ferrel 1993; Schroeder and Thompson 1987; Shoop and Kenney 1992). Juvenile and adult foraging habitats include both coastal and offshore feeding areas in temperate waters and offshore feeding areas in tropical waters (Frazier 2001). The movements of adult leatherback sea turtles appear to be linked to the seasonal availability of their prey and the requirements of their reproductive cycles (Collard 1990; Davenport and Balazs 1991).

In the Atlantic Ocean, female leatherback sea turtles have been tracked traveling from nesting beaches in the southern Caribbean due north to waters off Cape Breton Island, Nova Scotia, where they forage for many months (James, Ottensmeyer and Myers 2005). Tracking indicated that most turtles leave in October and all migrate south. Some turtles migrate to waters near nesting beaches in Central and South America, while others migrated to open-ocean waters between 5 °N and 23 °N, or to continental shelf waters off the southeastern U.S. In February and March, these turtles migrated back to the North Atlantic Ocean, typically arriving in June (James, Ottensmeyer and Myers 2005). Aerial surveys off the southeastern U.S. coast indicate that leatherback sea turtles occur in these waters throughout the year, with peak abundance in summer (Turtle Expert Working Group 2007).

In the Gulf of Mexico, leatherback sea turtles regularly inhabit deep offshore waters in the vicinity of DeSoto Canyon for feeding, resting, and migrating (Davis, Evans and Würsig 2000; Landry and Costa 1999). Leatherback sea turtles may also occur in shallow waters on the continental shelf and have been observed feeding on dense aggregations of jellyfish in nearshore waters off the Florida Panhandle, the Mississippi River Delta, and the Texas coast (Collard 1990).

In the eastern North Pacific Ocean, leatherback turtles are broadly distributed from the tropics to as far north as Alaska (Eckert 1993; Hodge and Wing 2000). Stinson (1984) concluded that the leatherback was the most common sea turtle in U.S. waters north of Mexico. While the leatherback is known to occur throughout the California Current System, it is not known to nest anywhere along the U.S. Pacific coast. Leatherback turtles are regularly seen off the western coast of the U.S., with the greatest densities found off central California. Off central California, sea surface temperatures are highest during the summer and fall, and oceanographic conditions create favorable habitat for prey species. There is some evidence that they follow the 61 °F (16 °C) isotherm into Monterey Bay (Starbird, Baldridge and Harvey 1993).

In Hawaii, leatherbacks sightings and by catches from fishing operations are thought to represent individuals migrating from one part of the Pacific to another (Balazs 1973). They are "regularly sighted" in offshore waters within the southeastern end of the Hawaiian archipelago. In August of 1979 approximately ten individuals were sighted in the pelagic water northwest of Hawaii (Balazs 1982a).

Within the Southern Hemisphere, leatherbacks can be found within the South Atlantic Ocean along the coast as far south as Brazil. Within the South Pacific Ocean, they inhabit coastal waters as far south as Chile. They do not occur within the Southern Ocean (National Oceanic and Atmospheric Administration (NOAA) 2014b).

Leatherback sea turtles are likely to occur within all the Study Areas, but not within the Southern Ocean of the Southern Hemisphere Study Area.

2.3.5. Loggerhead sea turtle

Loggerhead sea turtles (*Caretta caretta*) inhabit all temperate and tropical regions of the Atlantic and Pacific oceans. Nine distinct population segments exist for loggerhead sea turtles. The North Pacific Ocean, South Pacific Ocean, North Indian Ocean, Northeast Atlantic Ocean, and Mediterranean Sea distinct population segments are listed as endangered. The Southeast Indo-Pacific Ocean, Southwest Indian Ocean, Northwest Atlantic Ocean, and South Atlantic Ocean distinct population segments are listed as threatened.

Loggerhead sea turtles occur in U.S. waters in habitats ranging from coastal estuaries to waters far beyond the continental shelf (Dodd Jr. 1988). Loggerheads typically nest on beaches close to reef formations and next to warm currents (Dodd Jr. 1988), preferring beaches facing the ocean or along narrow bays (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998c). Nesting occurs from April through September, with a peak in June and July (Dodd Jr. 1988; Weishampel, Bagley and Ehrhart 2006; Williams-Walls et al. 1983). After emerging from their shells, hatchlings swim to offshore currents and remain in the open ocean, often associating with floating mats of *Sargassum* (Carr 1986, 1987; Witherington and Hirama 2006). Migration between oceanic and nearshore habitats occurs during the juvenile stage as turtles move seasonally from open-ocean current systems to nearshore foraging areas (Bolten 2003; Mansfield 2006). Once adults, loggerheads continue to migrate seasonally from feeding areas to mating and, for females, nesting areas (Bolten 2003). After reaching sexual maturity, adult turtles settle in nearshore foraging habitats (Godley et al. 2003; Musick and Limpus 1997).

Loggerheads are commonly found throughout the North Atlantic including the Gulf of Mexico and Caribbean. In the North Atlantic, after reaching a length of approximately 16 in (40 cm) (Carr 1987), early juvenile loggerheads make a transoceanic crossing, swimming back to nearshore feeding grounds near their beach of origin in the western Atlantic Ocean (Burke, Standora and Morreale 1991; Musick and Limpus 1997). Juvenile loggerhead sea turtles inhabit offshore waters in the North Atlantic Ocean, where they are often associated with natural and artificial reefs (Fritts, Hoffman and McGehee 1983). Subadult and adult loggerhead turtles tend to inhabit deeper offshore feeding areas along the western Atlantic coast, from mid-Florida to New Jersey (Hopkins-Murphy, Owens and Murphy 2003; Roberts et al. 2005).

Shoop and Kenney (1992) estimated that a minimum of 8,000 to 11,000 loggerheads are present in the northeastern U.S. continental shelf waters each summer, with the highest summer occurrence in waters over the mid-continental shelf, roughly from Delaware Bay to Hudson Canyon. Juveniles are frequently observed in developmental habitats, including coastal inlets, sounds, bays, estuaries, and lagoons with depths less than 328 ft (100 m) (Hopkins-Murphy, Owens and Murphy 2003; Turtle Expert Working Group 1998). Long Island Sound, Cape Cod Bay, and Chesapeake Bay are the most frequently used juvenile developmental habitats along the northeastern U.S. Continental Shelf (Burke, Standora and Morreale 1991; Mansfield 2006; Prescott 2000; University of Delaware Sea Grant 2000).

Coles and Musick (2000) identified preferred sea surface water temperatures to be between 56 °F and 82 °F (13.3°C and 28 °C) for loggerhead turtles off North Carolina. As water temperatures drop from October to December, most loggerheads emigrate from their summer developmental habitats and eventually return to warmer waters south of Cape Hatteras, where they spend the winter (Morreale and Standora 1998). The nesting population of the Northwest Atlantic Ocean loggerhead sea turtle distinct population segment is concentrated along the U.S. east coast and Gulf of Mexico from southern Virginia to Alabama (Conant et al. 2009). The greatest proportion of that nesting occurs on the Atlantic coast of Florida, below latitude 29 °N (Ehrhart, Bagley and Redfoot 2003).

In the Gulf of Mexico, loggerhead sea turtles can be found during all seasons in both continental shelf and slope waters (Davis, Evans and Würsig 2000; Fritts, Hoffman and McGehee 1983). Nesting is infrequent in this region, and juvenile loggerheads appear to primarily use the developmental habitats found in the northwestern Gulf (Bolten 2003; Bowen et al. 1995; Musick and Limpus 1997; Pitman 1990; Zug, Balazs and Wetherall 1995). The occurrence of loggerhead sea turtles during winter is likely concentrated in the northeastern Gulf, in Alabama and Florida Panhandle shelf waters, and in the deeper off-shelf waters from Texas to Florida, although not as abundantly as in shelf waters.

Loggerheads nest throughout the Caribbean. The most commonly researched nesting sites include Quinatan Roo, and Yucatan, Mexico (National Oceanic and Atmospheric Administration (NOAA) 2014b). These locations average greater than 100 nests per year. Loggerheads can be found throughout the Caribbean, foraging in offshore waters or breeding at nesting locations along beaches (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1991).

Pacific Ocean loggerheads appear to use the entire North Pacific Ocean during development. There is substantial evidence that the North Pacific Ocean stock makes two transoceanic crossings. Offshore, juvenile loggerheads forage in or migrate through the North Pacific Subtropical Gyre as they move between North American developmental habitats and nesting beaches in Japan. The North Pacific Transition Zone is defined by convergence zones of high productivity that stretch across the entire North Pacific Ocean from Japan to California (Polovina et al. 2001). These turtles, whose oceanic phase lasts a decade or more, have been tracked swimming against the prevailing current, apparently to remain in the areas of highest productivity. Juvenile loggerheads originating from nesting beaches in Japan migrate through the North Pacific Transition Zone en route to important foraging habitats in Baja California (Bowen et al. 1995).

In the eastern Pacific, the loggerhead turtle is known to occur at sea in the southern California, but does not nest on southern California beaches. Southern California waters are considered an area of occurrence during the warm-water period. The area of occurrence during the cold-water period is cut along the 64 °F (18 °C) isotherm. Loggerheads are generally not found in waters colder than 60.8 °F (16 °C), so the area north of the 60.8 °F (16 °C) isotherm is depicted as an area of rare occurrence. The loggerhead embarks on transoceanic migrations, and has been reported as far north as Alaska and as far south as Chile (National Oceanic and Atmospheric Administration (NOAA) 2014b).

Loggerhead juveniles are only rarely encountered within the pelagic waters of the Hawaiian Archipelago. Four records of Loggerheads within Hawaii were recorded: two were located in the southeastern portion of the archipelago, a third was recovered from the stomach of a tiger shark within the Kure Atoll, and the forth off the coast of Oahu in October 1991. All four of these sightings were of juveniles (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998c).

Within the Southern Hemisphere, loggerheads can be found within coastal waters of the South Atlantic Ocean as far south as Brazil. They do not occur within the South Pacific or Southern Oceans (National Oceanic and Atmospheric Administration (NOAA) 2014b).

Loggerhead sea turtles are likely to occur within all the Study Areas, but not within the South Pacific or Southern Oceans of the Southern Hemisphere Study Area. They are primarily concentrated in warmer waters but may conduct open ocean migrations, which could potentially cross the proposed transit route once in the high seas.

2.3.6. Olive ridley sea turtle

Olive ridley sea turtles (*Lepidochelys olivacea*) occur south of Florida to the northern half of Brazil in the Atlantic Ocean, and inhabit the eastern Pacific Ocean. The olive ridley sea turtle is listed as threatened, except the breeding populations of Mexico's Pacific coast which are listed as endangered. Most olive ridley turtles lead a primarily open ocean existence (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998d). Outside of the breeding season, the turtles disperse, but little is known of their foraging habitats or migratory behavior. Neither males nor females migrate to one specific foraging area, but tend to roam and occupy a series of feeding areas in the open ocean (Plotkin, Byles and Owens 1994). The olive ridley has a large range in tropical and subtropical regions in the Pacific Ocean, and is generally found between 40 °N and 40 °S. Both adult and juvenile olive ridley turtles typically inhabit offshore waters, foraging from the surface to a depth of 490 ft (149 m) (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998d). Groups of more than 100 turtles have been observed as far offshore as 120 °W, at about 1,620 nm (3,000 km) from shore (Arenas and Hall 1992). Sightings of large groups of olive ridley turtles at sea reported by Oliver in 1946 (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998d) may indicate that turtles travel in large flotillas between nesting beaches and feeding areas (Márquez-Millán 1990). Specific post-breeding migratory pathways to feeding areas do not appear to exist, although olive ridley turtles swim hundreds to thousands of kilometers over vast oceanic areas.

The olive ridley sea turtle in the western North Atlantic is considered extralimital. Western Atlantic olive ridley sea turtle populations are centered near Suriname/French Guiana and Brazil. Between 1999 and 2001, three individuals were reported in coastal south Florida; however, all were strandings (Foley et al. 2003). These are the first known sightings in Florida and the northernmost occurrences of olive ridleys in the western North Atlantic. These sightings are considered extralimital occurrences, and genetic analysis confirmed that these three turtles were members of the Suriname/French Guiana population (Foley et al. 2003). Currently, there are no olive ridley nesting beaches in the eastern U.S., and there are no known feeding, breeding, or migration areas.

A significant nesting area for olive ridley sea turtles, globally, occurs in the eastern Pacific Ocean, along the western coast of southern Mexico and northern Costa Rica, with reported nesting as far north as southern Baja California (Fritts, Stinson and Márquez-M. 1982). In the open ocean of the eastern Pacific Ocean, olive ridley turtles are often seen near flotsam (floating debris), possibly feeding on associated fish and invertebrates (Pitman 1992). The olive ridley turtle occurs off the coast of southern and central California, but is not known to nest on California beaches. Olive ridley turtles are occasionally seen in shallow waters less than 165 ft (50 m), although these sightings are relatively rare (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998d). In general, turtle sightings increase during summer as warm water moves northward along the coast (Steiner and Walder 2005).

Olive ridley sea turtles are considered rare in Hawaiian waters (Balazs 1982b). Only one single nesting event occurred on the island of Maui, Hawaii in September 1985 (Balazs and Hau 1986).

Though considered rare, olive ridely sea turtles are occasionally caught in longline fisheries off of Hawaii (National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) 1998d).

Olive ridley sea turtles are likely to occur within the eastern Pacific Study Area. They are not expected to occur within the Hawaiian Pacific or western Atlantic Study Areas. They do not occur within the Caribbean Sea, Gulf of Mexico, or Southern Hemisphere Study Areas.

CHAPTER 3 ENVIRONMENTAL CONSEQUENCES

Vessel movement associated with the proposed action could result in collision between the tug, tow cable, or tow and ESA-listed species.

3.1. CRITICAL HABITAT

There are seven ESA-listed species that have designated critical habitat within at least one of the Proposed Study Areas. These include the southern resident killer whale, North Atlantic right whale, North Pacific right whale, Hawaiian monk seal, green sea turtle, hawksbill sea turtle, and leatherback sea turtle. The primary constituent elements for the critical habitat for these species may include (1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing of offspring, and (5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species. These primary constituent elements are not expected to be impacted by vessel movement through the area. Therefore, there would be no effect to critical habitat from the proposed action.

3.2. IMPACTS TO THE BIOLOGICAL ENVIRONMENT

3.2.1. Fish

Large vessels that transit through shipping channels typically draft close to the bottom of the channel, which increases the likelihood of interaction with bottom-dwelling fish such as the Atlantic and shortnose sturgeon. From 2007 to 2010, Balazik et al. (2012) evaluated the cause of mortality to 31 carcasses of adult Atlantic sturgeon within the tidal freshwater portion of the James River in Virginia. Of the 31 carcasses, twenty-six (the remaining five were too severely decomposed to determine the cause of death) of them had gashes from vessel propellers. Furthermore, it was determined that small, recreational boats would rarely encounter sturgeon and it is most likely large, deep-draft ocean ships and vessels that contribute to strike and mortality of sturgeon in the James River (Balazik et al. 2012).

Transit routes through the Delaware River, Delaware Canal, and Chesapeake Bay may encounter sturgeon. The Philadelphia/Delaware River port complex is located far up in the estuary. The location of the port requires vessels to navigate through most of the estuary and potential Atlantic sturgeon habitat, thereby increasing the possibility of vessel strike with sturgeon. Despite the presence of Atlantic and shortnose sturgeon in the proposed action area, it is not likely that infrequent towing events would result in strike due to the low density of sturgeon and the minimal time that a vessel would be in a given location.

3.2.2. Marine Mammals

Interactions between surface vessels and marine mammals have demonstrated that surface vessels represent a source of acute and chronic disturbance for marine mammals (Au et al. 2000; Bejder et al. 2006; Hewitt 1985; Jefferson, Hung and Wursig 2009; Kraus et al. 1986; Magalhães et al. 2002; Nowacek, Johnson and Tyack 2004a; Richter, Dawson and Slooten 2003; Richter et al. 2008; Williams, Lusseau and Hammond 2009). In some circumstances, marine mammals respond to vessels with the same behavioral repertoire and tactics they employ when they encounter predators, although it is not clear what environmental cue or cues marine mammals might respond to–the sounds of water being displaced by the ships, the sounds of the ships' engines, or a combination of environmental cues surface vessels produce while they transit. In one study, North Atlantic right whales were documented to show little overall reaction to the playback of sounds of approaching vessels, but they did respond to an alert signal by swimming strongly to the surface, which may increase their risk of collision (Nowacek, Johnson and Tyack 2004a). Aside from the potential of collision addressed below, physical disturbance from vessel use is not expected to result in more than a momentary behavioral response.

The most vulnerable marine mammals to collision are thought to be those that spend extended periods at the surface or species whose unresponsiveness to vessel sound makes them more susceptible to vessel collisions (Gerstein 2002; Laist and Shaw 2006; Nowacek, Johnson and Tyack 2004b). Marine mammals such as dolphins, porpoises, and pinnipeds that can move quickly throughout the water column do not appear to be as susceptible to vessel strikes, though the risk of a strike still exists for these species.

Vessel speed, size, and mass are all important factors in determining potential impacts of a vessel strike to marine mammals (Vanderlaan and Taggart 2007). For large vessels, speed and angle of approach can influence the severity of a strike. Silber et al. (2010) found, based on hydrodynamic modeling, that whales at the surface experienced impacts which increased in magnitude with the ship's increasing speed. Results of the study also indicated that potential impacts were not dependent on the whale's orientation to the path of the ship, but vessel speed may be an important factor. At ship speeds of 15 knots or higher, there was a marked increase in intensity of centerline impacts on whales. Results also indicated that when the whale was below the surface (about one to two times the vessel draft), there was a pronounced propeller suction effect. This suction effect may draw the whale into the hull of the ship, increasing the probability of propeller strikes (Silber, Slutsky and Bettridge 2010).

Vessel collisions are well known source of mortality in marine mammals, and can be a significant factor affecting some large whale populations (Knowlton and Kraus 2001; Laist et al. 2001; van Waerebeek et al. 2007). During a review of data on the subject, Laist et al. (2001) compiled historical records of ship strikes, which contained 58 anecdotal accounts. It was noted that in the majority of cases, the whale was either not observed or seen too late to maneuver in an attempt to avoid collision. Right whales have been observed to exhibit little reaction to approaching vessels (Nowacek, Johnson and Tyack 2004a). Logging sperm whales, recovering on the surface from deep foraging dives, are also particularly susceptible to vessel strike (Watkins et al. 1999).

The speed of the ship is an important factor in predicting the lethality of a strike. Laist et al. (2001) noted that most severe and fatal injuries occurred when the vessel was traveling in excess of 14 knots with no recorded mortalities at speeds less than 10 knots. Although the tug and tow would be traveling at 10 knots or less, slow speed does not eliminate the chance that a collision would result in fatal injury. Vanderlaan and Taggert (2007) analyzed this question and concluded that at speeds below 8 knots there was still a 20% risk of death from blunt trauma. Additionally, there is a possibility that a marine mammal could be struck by the tug's propeller, which, even at low speeds, greatly increases the chance of a mortal wound (Knowlton and Kraus 2001; Woodward et al. 2004). The towed ship would pose the same threat for blunt trauma as the tug, but not possess the added danger of a rotating propeller.

The effect of a marine mammal encountering a tow cable is not known. The cable used is 2,000 ft (610 m) in length with a relatively narrow diameter (2.25 in [5.72 cm]). The tow cable was evaluated for the potential to injure marine mammals because it would be at a depth of up to 100 ft (30 m) and have tension of up to 75 tons. Nowacek et al. (2001) used data recording tags to investigate the diving and surfacing behavior of right whales. It was concluded that during ascent, in particular, the animal's positive buoyancy reduced its ability to maneuver, even if a threat was perceived overhead. Studies on tissue injuries in both right and humpback whales resulting from interaction with 0.26 in (6.5 millimeter [mm]) and 0.37 in (9.5 mm) diameter polypropylene lines used on lobster gear concluded that elasticity of the line, tension applied and the length that was drawn over the skin were factors in how deeply the line penetrated the epidermis. More elastic lines and shorter draw lengths were less damaging than those lines with minimal stretch and greater length (Winn et al. 2008). Should a large whale surface from beneath the tow cable, the lack of elasticity of wire rope under great strain combined with up to 2,000 ft (610 m) of draw length has the potential to cause lacerations and injury.

3.2.3. Sea Turtles

Sea turtles can detect approaching vessels, likely by sight rather than by sound (Bartol and Ketten 2006; Hazel et al. 2007). Sea turtles seem to react more to slower moving vessels (2.2 knots) than to faster vessels (5.9 knots or greater). During an interaction between sea turtles and a 20 ft (6 m) aluminum boat traveling at 10 knots, turtles were not able to dive to a depth sufficient to avoid collision (Hazel et al. 2007).

Precise data are lacking for sea turtle mortalities directly caused by ship strikes; however, live and dead turtles are often found with deep cuts and fractures indicative of collision with a boat hull or propeller (Hazel et al. 2007; Lutcavage et al. 1997). Vessel-related injuries to sea turtles are more likely to occur in areas with high boating traffic. For example, propeller wounds on loggerhead sea turtles are found often in southeast Florida, from Palm Beach County to Miami-Dade County, likely due to the prevalence of recreational boating in that region (National Marine Fisheries Service , Fish and Wildlife Service 2007). A study in Queensland, Australia, produced similar results (Hazel and Gyuris 2006).

Minor strikes may cause temporary reversible impacts, such as diverting the turtle from its previous activity or causing minor injury. Major strikes are those that can cause permanent injury or death from bleeding/trauma, paralysis and subsequent drowning, infection, or inability to feed. Apart from the severity of the physical strike, the likelihood and rate of a turtle's recovery from a strike may be influenced by its age, reproductive state, and general condition. Much of what is written about recovery from vessel strikes is inferred from observing individuals sometime after a strike. Numerous sea turtles bear scars that appear to have been caused by propeller cuts or collisions with vessel hulls (Hazel et al. 2007; Lutcavage et al. 1997), suggesting that not all vessel strikes are lethal. Conversely, fresh wounds on some stranded animals may strongly suggest a vessel strike as the cause of death. The actual incidence of recovery versus death is not known, given available data.

Any of the sea turtle species found in the Study Area can occur at or near the surface in open-ocean and coastal areas, whether feeding or periodically surfacing to breathe. Sea turtles spend most of their time submerged (Renaud and Carpenter 1994; Sasso and Witzell 2006). Leatherback turtles are more likely to feed at or near the surface in open ocean areas. Green, hawksbill, Kemp's ridley, and loggerhead turtles are more likely to forage nearshore, and although they may feed along the seafloor, they surface periodically to breathe while feeding and moving between nearshore habitats. These species are distributed widely in all offshore portions of the Study Area.

3.3. RISK ASSESSMENT

Preventing collision with marine mammals and sea turtles depends on detecting the animal in time to take effective action. The NOAA "Vessel Strike Avoidance Measures" are based upon sighting animals and taking action to avoid them, including maneuvering and shifting engines into neutral. In the case of a tug and tow, the ability to take such actions is considerably constrained. Additionally, it is difficult to sight whales or sea turtles during periods of poor visibility.

Although the tug, tow cable, and tow may affect endangered species encountered along the proposed tow routes, the chance that such an encounter would result in serious injury is extremely remote. The relatively low speed of the tug and tow reduces the chance that a fatal injury to listed whales would occur (Vanderlaan and Taggart 2007). The most susceptible species are North Atlantic right whales and sperm whales that may spend more time at the surface. All species of sea turtles are considered vulnerable.

There has been speculation that at low speeds animals may be afforded more time to take action to avoid contact with the vessel. There have been few reported collisions of whales with ships at speeds under 10 knots (Jensen and Silber 2004; Laist et al. 2001; Vanderlaan and Taggart 2007), but whether it is related to avoidance on the part of the animal or operators being able to take action is unclear in the available literature.

The amount of time that the tug and tow spends in habitats associated with these species is another important consideration. One of the possible towing routes planned starts in Bremerton, Washington, and has the tug and tow traveling south through the U.S. Exclusive Economic Zone (EEZ) between 50 and 100 nm from the coast, then through the high seas, through the Straits of Magellan before turning north toward the Gulf of Mexico or the East Coast of North America. There would be a relatively short period of time during which the tug and tow would transit through southern resident killer whale habitat as it travels out of Puget Sound, remaining within the U.S. EEZ as it parallels the coast before moving further offshore until it approaches the Straits of Magellan. The proposed route then takes the tug and tow well offshore of the eastern South American Coast. The vessels would not likely encounter significant densities of listed species until the Gulf of Mexico where sea turtles become more abundant. The route to Baltimore would mostly occur off the continental shelf, but cross the shelf break near Virginia, passing through the North Atlantic right whale migratory corridor as it enters the Chesapeake Bay at Hampton Roads. The route from Philadelphia to Jacksonville would also likely transit through the migratory corridor and the southeastern North Atlantic right whale critical habitat. Right whales may be present in this area from November through April, with peak abundance during March and April (Knowlton et al. 2002). All recorded sightings were within 35 nm of shore (Knowlton et al. 2002). At a speed of 8 knots, the tug and tow would transit this area in less than four and a half hours.

Another possible route would be to transit to either New Orleans, Louisiana, or Brownsville, Texas, after departing from Philadelphia and heading east from Delaware Bay until beyond the main axis of the Gulf Stream before turning south. Right whale occurrence in the vicinity of Delaware Bay is similar to what is noted for Hampton Roads with the exception that they may range slightly further offshore (Knowlton et al. 2002). However, all sightings have been within 40 nm of the coast. Again, using an 8 knot average speed it would take the tug and tow five hours to clear this corridor. Sea turtles are more abundant in the Straits of Florida and the Gulf of Mexico. The potential route into New Orleans passes through a few areas of high sperm whale density approaching the shelf break off the Mississippi Delta (Baumgartner et al. 2001). The general region stretches for approximately 100 nm, which would take 12.5 hours to transit at 8 knots. In all cases, when viewed within the broad context of the proposed action, the amount of time the tug and tow would occur in areas where listed species may been encountered is minimal.

In conclusion, based upon the slow speed of the tug and tow along with the relatively short periods they would be transiting habitats where the most susceptible species (North Atlantic right whales, sperm whales, and sea turtles) are most likely to be encountered, the Navy concludes that this action may affect but is not likely to adversely affect endangered species. Furthermore, this action would not result in the destruction or adverse modification of federally-designated critical habitat.

CHAPTER 4 REFERENCES

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